

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 12 APR 2006

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:
JAMES W. BABINEAU
FISH & RICHARDSON P.C.
225 FRANKLIN STREET
BOSTON, MA 02110-2804

Date of mailing
(day/month/year) **10 APR 2006**

Applicant's or agent's file reference 14564-021WO1		FOR FURTHER ACTION See paragraph 2 below	
International application No. PCT/US05/01891	International filing date (day/month/year) 21 January 2005 (21.01.2005)	Priority date (day/month/year) 20 January 2004 (20.01.2004)	
International Patent Classification (IPC) or both national classification and IPC IPC: H01S 3/08(2006.01) USPC: 372/102			
Applicant TRUMPF PHOTONICS, INC.			

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Date of completion of this opinion 06 March 2006 (06.03.2006)	Authorized officer <i>Rhonda for help</i> Dung (Michael) T. Nguyen Telephone No. (703) 306-3329
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Form PCT/ISA/237 (cover sheet) (April 2005)

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US05/01891

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
☐ filed together with the international application in electronic form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/01891

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-43</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-43</u>	NO
Industrial applicability (IA)	Claims <u>1-43</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1-43 lack novelty under PCT Article 33(2) as being anticipated by Rakuljic et al.

With respect to claims 1-34, Rakuljic et al. disclose in Fig.1-2 a light source comprising a semiconductor diode laser (11) (column 7, lines 41-45) and a reflector (12) having a three-dimensional pattern of refractive index variations within the reflector (column 7, line 67 and column 8, line 1), the reflector being in optical communication with the semiconductor diode laser and aligned with an output beam of the diode laser, such that a portion of the light in the output beam is reflected back into the laser by the reflector (dotted lines in Fig.1).

With respect to claims 35-43, Rakuljic et al. disclose in Fig.1-2, 19, and 22 a light source comprising a first semiconductor diode laser (78, one of the laser array), a first reflector (77a) having a three-dimensional pattern of refractive index variations within the reflector (column 7, line 67 and column 8, line 1), the first reflector being in optical communication with the first semiconductor diode laser and aligned with an output beam of the first diode laser, such that a portion of the light in the output beam is reflected back into the first laser by the first reflector (dotted lines in Fig.1), a second semiconductor diode laser (78, one of the laser array), a second reflector (77b) having a three-dimensional pattern of refractive index variations within the reflector (column 7, line 67 and column 8, line 1), the second reflector being in optical communication with the second semiconductor diode laser and aligned with an output beam of the second diode laser, such that a portion of the light in the output beam is reflected back into the second laser by the second reflector; and a first beam combiner (94 in Fig.22) adapted and arranged for combining the output beams of the first laser (92) and the second laser (93).

Claims 1-43 meet the criteria set out in PCT Article 33(4), and thus meet the industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 14564-021 WO1	FOR FURTHER ACTION		See item 4 below
International application No. PCT/US2005/001891	International filing date (day/month/year) 21 January 2005 (21.01.2005)	Priority date (day/month/year) 20 January 2004 (20.01.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant TRUMPF PHOTONICS, INC.			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 338 82 70</p>	Date of issuance of this report 24 July 2006 (24.07.2006)
	<p>Authorized officer</p> <p>Athina Nickitas-Etienne</p> <p>e-mail: pt04@wipo.int</p>